**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF THE CLAIMS**:

Claims 1 – 8 (Canceled)

9. (Currently Amended) A method for monitoring and controlling wavelengths of an optical transmitter module or optical transmitter and receiver module internally including: a measurement portion for measuring a laser diode temperature and bias current or only the temperature; a storage portion in which the relationship between the temperature, bias current and wavelengths or between the temperature and wavelengths is stored; a central controlling portion for controlling the measurement portion and the storage portion; and a temperature adjusting portion composed of a temperature controlling device, wherein the method comprising steps of:

calculating wavelength information on the basis of the temperature and bias current or only the temperature measured by the measurement portion, and the relationship between the laser diode temperature and wavelengths or between the laser diode temperature, bias current and wavelengths stored in the storage portion; ~~and~~

comparing predetermined minimum and maximum threshold values, with the wavelength information calculated in the step of calculating wavelength information;

lowering the internal temperature by the temperature adjusting portion when the result of the comparing step is smaller than or equal to the minimum threshold value; and

raising the internal temperature by the temperature adjusting portion when the result of the comparing step is larger than or equal to the maximum threshold value.

~~adjusting and controlling the internal temperature by feeding back to the temperature adjusting portion using the calculated wavelength information.~~

10. (Canceled)

11. (Currently Amended) The method for monitoring and controlling wavelengths according to Claim ~~10~~ 9, wherein,

the step of calculating wavelength information uses the temperature and bias current or only the temperature measured by the measuring portion, and the relationship between the laser diode temperature and wavelengths or between the laser diode temperature, bias current and wavelengths stored in the storage portion, and calculates wavelength information by obtaining λc, ic, a, and b in Equation (1) or λc and a in Equation (2);

$$\lambda = \lambda c + aT + b(1 - ic) \qquad \text{Equation (1)}$$

$$\lambda = \lambda c + aT \qquad \text{Equation (2)}$$

(where λc is a wavelength at temperature 0°C and threshold current value ic, a and b are coefficients, T is a temperature, and i is a bias current).

12. (Currently Amended) The method for monitoring and controlling wavelengths according to Claim ~~10~~ 9, wherein

the step of calculating wavelength information selects a smaller temperature value T1 than the measured temperature Tmes, a larger temperature value T2 than the measured temperature Tmes, a smaller bias current value I1 than the measured bias current Imes and a larger bias current value I2 than the bias current value Imes by using the temperature and bias current measured by the measurement portion, and the relationship between the laser diode temperature, bias current and wavelengths stored in the storage portion; extracts four wavelengths (λ11 = λ(I1, T1), λ21 = λ(I2, T1), λ12 = λ(I1, T2)), and λ22 = λ(I2, T2) corresponding thereto; and calculates the wavelength λmes1 = λ(Imes, T1) at the measured bias current Imes by linearly interpolating the bias current dependency of the wavelengths at temperature T1 using λ11 and λ21; calculates the wavelength λmes2 = (Imes , T2) at the measured bias current Imes by linearly interpolating the bias current dependency of the wavelength at temperature T2 using λ12 and λ22; and calculates the wavelength λmes = (Imes, Tmes ) at the measured bias current Imes and temperature Tmes by linearly interpolating the temperature

dependency of the wavelength at the measured bias current Imes using the calculated λmes1 and λmes2.

13. (Currently Amended) The method for monitoring and controlling wavelengths according to Claim ~~10~~ 9, wherein

the step of calculating wavelength information selects a smaller temperature T1 than the measured temperature Tmes, a larger temperature T2 than the measured temperature Tmes, a smaller bias current I1 than the measured bias current Imes, a larger bias current I2 than the measured bias current Imes, and a bias current I3 differing from the bias currents I1 and I2 by using the temperature and bias current measured by the measurement portion and the relationship between the laser diode temperature, bias current and wavelengths stored in the storage portion; extracts six wavelengths (λ11 = λ(I1 , T1), λ21 = λ(I2, T1), λ12 = λ(I1, T2), λ22 = λ(I2, T2), λ31 = λ (I3, T1)), and λ32 = λ(I3, T2) corresponding thereto; approximates the bias current dependency of the wavelength at the temperature T1 by a quadratic function using λ11, λ21 and λ31; approximates the bias current dependency of the wavelength at the temperature T2 by a quadratic function using λ12, λ22 and λ32; and calculates the wavelength λmes = λ(Imes, Tmes) at the measured bias current Imes and temperature Tmes.

14. (Currently Amended) The method for monitoring and controlling wavelengths according to Claim ~~10~~ 9, wherein the step of calculating wavelength information extracts a wavelength by causing the measured temperature and bias current to correspond to any one of the temperatures stored in matrices indicating the relationship between the laser diode temperature and wavelengths or between the laser diode temperature, bias current and wavelengths stored in the storage portion.

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Currently Amended) A method for monitoring and controlling wavelengths according to any one of Claims 9 , 11 12, 13, 14, further comprising a laser diode drive current controlling circuit which controls the drive current of the laser diode , wherein, the method further comprising, before the step of calculating wavelength information, steps of:

comparing predetermined minimum and maximum threshold values, ~~threshold values of an optical output alarm or warning, in which the minimum value and maximum value of optical output are predetermined,~~ with the optical output measured by the measurement portion; ~~and~~

raising the bias current by the laser diode drive current controlling circuit when the result of the comparing step is smaller than or equal to the minimum value of the threshold values; and

lowering the bias current by the laser diode drive current controlling circuit when the result of the comparing step is larger than or equal to the maximum value of the threshold values.

~~on the basis of a comparison made by the optical output comparing step, feeding the result back to the laser diode drive current controlling circuit when the result is outside the range of the threshold values, raising the bias current by the laser diode drive current controlling circuit if the result is smaller than or equal to the minimum value of the threshold values, and lowering the bias current by the laser diode drive current controlling circuit if the result is larger than or equal to the maximum value of the threshold values.~~